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HISTORICAL APPROACH TO ECONOMICS

In these days when the attention of students of economics is directed so frequently to particular branches of economic study and when the tendency toward specialization in these branches seems to lead almost to the exclusion of the broader basis of economic theory, it is well to call attention anew to the essential unity existing in the study of history, politics, philosophy, and economics. To do this properly requires the study of economic theory and economic institutions from the evolutionary point of view. On this account, then, the student of economics who aspires to a real knowledge of his subject must approach that study by means of the historical method. This paper constitutes a plea for the historical approach to economics, and in the support of this plea it seeks to point out the manner in which the study of economics is dependent upon data drawn from the other social sciences and to show in turn how the practice of economics, or economy, modifies those social sciences. For this purpose the paper will deal with the relations between economy, economics, and economic history, the interdependence of economics and politics, the economic interpretation of history, and the stages through which economic society has passed in arriving at its present form of organization.

Economy and economics are terms much used interchangeably. A distinction is often made between them, however, and this distinction deserves emphasis. When made, the distinction usually turns upon regarding economy as the more concrete term and economics as the more abstract. Thus, economy tends to designate a mode of action involving the relations of men in a group pursuing their living. Some, perhaps most, writers would hesitate to say further that therefore any group of persons associated directly by customs or law in the pursuit of their living may be regarded as constituting an economy. But precisely this step requires to be taken in order to have the service of a concrete term which will definitely correspond to its abstract counterpart. The word economy, in consonance with its historical significance of management of the affairs of a house, a community, or estate, includes in its connotation not only the economic act or action, but also the actors and agencies which are necessarily implied or involved in any system or art of management.

Any organized activity which has for its purpose the securing of a living constitutes an economy. Every form of organized activity involves or implies a group of persons engaging in common or con-

certed activity. Hence it is not resorting to the use of a violent metaphor to speak directly and specifically of any group of persons or individuals associated by custom or law in the pursuit of their living, or in seeking their living, as constituting an objective or concrete economy. In this sense we can speak of a hive of bees in active operation or a tribe of savages or a community of civilized men as an economy. But neither the hive nor the bees, nor the individuals composing the tribe or nation, are to be considered separately—but all or any of these in their correlated and inter-related activities or engaged in distinct but related sets of activity constitutes an economy or economy. It is not saving nor efficiency merely which constitutes economy. Any act or action performed and the person or persons involved in the performance of the same for the attainment of some end in pursuit of a living individually or collectively considered, enter into the make-up of a completed concept of an economy. Viewed thus concretely and comprehensively, an economy may be public or private. From this viewpoint the state, or any division thereof, and in early society any integral clan or tribe, constitutes a public economy. The various voluntary associations in the pursuit of gain, including all forms of corporations for business purposes, and usually families, constitute private economies. The actions or supposed actions of one person like Robinson Crusoe may be defined as an individual economy. Public and private economy may be contrasted as political economy and social economy.

Economics seeks to discover and enunciate the rules, principles, or laws, which underlie human activity in pursuit of a living. Some economists try to reduce these rules to the single law of parsimony, or the principle of seeking the greatest gain by the least effort; these identify the word economy with saving. But this limitation is neither historically nor logically necessary.¹ The adaptations and adjustments, or readjustments, of ways and means to ends in any specific economy cannot always be reduced to the single and somewhat troublesome negative concept of saving. In the earliest economy there was no search for general principles, but there was a search for food. In the ascending scale of economics the principle of saving or efficiency began first to be invoked, but wholly unconsciously, as the earnings or rewards of exploitation and conquest began to show themselves through the effective organization of governmental, political, or regulative institutions.

¹ Cf. Fetter, *Economic Principles* (Century Co., 1915), p. 7.

Even modern economics did not begin with any conscious search for the principle of saving or the principle of efficiency. It began rather with the assertion and concession of the right to freedom of contract. To have won this concession from churchmen was a great achievement. The mercantilist and cameralist stage of modern economics centered attention on problems of finance and management or administration, and was devoted largely to developing two branches of applied economics, namely, public finance and public administration. The English classical economy has since extolled the virtue of saving or abstinence as the true basis of achievement in commercial imperialism and in the private enterprising of a present world economy. But of late the plodding industry of the world has again centered attention on the importance of management or administration, and has again brought into the foreground the viewpoint of cameralism as an aspect of economy and as subject-matter for scientific treatment by the scientific economist. Hence we have now a *melée* of courses on business efficiency and business administration, and their recognition also, extensively although somewhat indistinctly and hesitatingly, as part or phases of an orthodox economics.²

Economics may be simply defined as the science of man's effort in the pursuit of a living; or as the science of the production and distribution of wealth; or more fully as the science of the organization, management, adjustment, and readjustment of ways and means available for attaining or realizing the ends of a rational existence individually and collectively; or adhering more strictly to its original Greek meaning, as the science of the organization and management of business or industry. In none of these definitions need we overlook the close relations which must exist between economics and politics, a relationship which has been in existence throughout the entire period of the history of economy, economics, and economics.

² In the present attitude of the world and of a formative world economy the call for efficiency has taken the place of the old preaching about saving and abstinence; it is, however, true that the efficiency movement and the older eulogies on saving and abstinence did have and now have much in common with each other. At present a more potent and positive concept than the concept of saving or abstinence must be employed in order to state the full scope of historical and now existing concrete economies, and in order to frame, formulate or expound any complete and adequate system of abstract economic theory or any competent science of economics.

Economic history aims to give an account of human progress from the earliest forms of the economy of primitive man, shall we say from the simplest animal forms of man's economies, to the highly complex forms of man's civilization. Otherwise stated, economic history aims to trace the story of economic progress from the simplest early forms of man's organized existence in the pursuit of a living, to the highly complex forms of modern life. From this point of view economic history becomes genetic economics which I regard as an important branch of descriptive economics.

Genetic economics may be defined by closely following the Greek meaning of economy and economics, as the science of economic organization, management, and achievement viewed and presented historically. Economic organization was the first form of social organization. It was also the first form of political organization, because it was itself the primary form of society upon which political society was constructed.

Economic history is social history which, although it is in no sense drum and trumpet history within John Richard Green's meaning of those words, can yet not wholly ignore political and military history. Economic history must take some note of church and state and of the sword as well as plowshare, chisel and plane, hammer and forge, spinning wheel and loom. Economic history, if used broadly, embraces a study of the development of industry and industrial organization in general, and it will include notice and recognition of the development of economic theory. Genetic economics or evolutionary economics thus is real economic history in the same sense that technological history is history of technology. The primary purpose, indeed, of the study of economic history is to inquire: How and why does industry or business tend to organize itself, and what are the successive stages of economic achievement? Accordingly, economic history occupies itself chiefly with successive forms of industrial organization and with successive stages of economic progress. Economic organization takes form and expression in the state, that is, in integral society and what is permitted thereby, in accordance with its own estimate of its welfare. Economic progress is progress in achievements or inventions representing the growing mastery of man over nature; it is progress also in associated living as related to the production and distribution of goods. The former is central in the production of economic goods; the latter, in their ownership and distribution, which are inconceivable without some system of law both public and

private. The two factors are combined in economic organization. Economic organization coördinates the means of production with some system of distribution taking form in custom or law authoritatively sanctioned or administered by society or the state. Economic organization passes through great transformations in successive culture epochs. In order to draw inferences respecting economic laws and tendencies long-time periods must be taken into consideration. Hence the importance of economic history for an appreciative understanding of the principles of economic science.

By a broad use of the term, even animals may be credited with economy. Many birds, the squirrel, the beaver, and other animals, may, without violence of speech, be said to possess and conduct an organized mode of living which, taken as a whole, can properly be called economy; the ant and the bee have elaborate types of organization and coöperation in the pursuit of their living, but economic history can take no note of these.

Human economy may be contrasted with animal economy, but the two have some things in common which should not be overlooked. In biology we meet with a more general concept of economy also evolved from the Greek *οἶκος*, house or *οἰκία* household. From housekeeping, as a system of activities and relationships that subserve the well-being of the housekeeper, the biologist derives the highly general notion of economy as any system of activities and relations which furthers the well-being of any class or species of living things. This biological meaning of the word gives us such phrases as "the economy of the animal kingdom," "the economy of the vegetable kingdom," and even the most general concept of all, "the economy of nature." In these notions there is no implication of consciousness, of pleasure or pain, and no presumption of intelligent planning or management on the part of the organisms that are benefited by their company. The thought is altogether objective. Such an objective use of the term economy has its place also in history and in the description of social phenomena. To ignore or discredit these biological aspects³ of human life is likely to result in obscuring the truth that in even the most progressive industrial-social economy of man, there is

³ Professor Giddings, in an article entitled "The Economic Ages," *Political Science Quarterly*, vol. 16, p. 195, controverts the propriety of this biological point of view in social science. The biological view, however, cannot be taken alone or by itself without its physical or social complement. The plea here made is simply for a recognition of the biological factor in its place.

much that is so far beyond the control of the individual that he is often ground like an atom in the economy of nature.

As there is an underlying unity between the physical and moral world, so there is an even deeper unity between all forms of human activity. Most conceptions of social unity are based on the analogies discoverable in the natural sciences. We begin with the mathematical or formal sciences, and pass through the material and the biological, and end with the psychological, sociological or social sciences. The term organism strictly relates only to the organization of the individual animal or plant. But by way of metaphor, in order to mark the analogy between plant or animal and social life, society has been called an organism, because made up of mutually interdependent parts. This has been called the organic conception of society.

In contrast with the organic conception of society, which is, after all, largely figurative, we must accustom ourselves to form direct conceptions of social unity which rest upon the facts of human organization for coöperation in the accomplishment of some common end or purpose. We must guard against the tendency to overlook the presence of will and purpose, the psychological factor in the development of human society.

In the sociological conception of social unity, the fundamental principle of social evolution is organization resting upon the conscious purpose or the will of individuals acting collectively or in coöperation, not an organism. It is the psychical which colors and gives character to everything that can be described as distinctively human.

Nevertheless, in social evolution we cannot ignore the presence of other and lower bonds of unity whose active coöperation in binding societies or groups of individuals together continues to assert itself sometimes, even in spite of or against the social will of the group. The lower bonds of unity remain active so far as human societies are rooted in and influenced by their physical and biological constitutions and environments. This large truth in social evolution may be emphasized to the neglect of psychical factors, but it should not be omitted in giving a complete account of the factors of social or economic development.

In a rudimentary society, every part fulfils for itself all needs. Progress to a stage wherein a standing army is maintained can go on only as there arise arrangements for supplying that army with

food, clothes, and munitions of war by the rest. If here the population occupies itself solely with agriculture and there with mining, if these manufacture goods while those distribute them, it must be on condition that in exchange for a special kind of service rendered by each part to other parts, these other parts severally give due proportions of their services. This division of labor was first described by political economists as a social phenomenon, and thereupon recognized by biologists as a phenomenon of living bodies, which Spencer called "the physiological division of labor."⁴

An internal regulative system develops as society increases in mass and organized efficiency. The opposition between mine and thine results in struggles which issue in property rights, at first defined by truce, consent or custom, which are later enshrined in tablets and written records, or in statutes and codes, so complex as to require the expert advice of the professional lawyer with the elaborate machinery of modern judicature for their interpretation and application, supported by the widely ramifying and far-reaching agencies of public administration. Viewed in this light it is not difficult to see that even the so-called political institutions are economic in their origin and ultimate significance.

It is economic impulses, efforts for the satisfaction of desires, that lie at the root of the first movement for political organization; it is a continuation of these impulses in new forms, a struggle of the higher collateral wants as they arise, that promotes the further evolution of political organization. For purposes of analysis and study, the sustaining and the regulative systems may be differentiated as the subject-matter respectively of economics and politics, but this must not be done without recognizing their essential interdependence, if we may not insist on the essential subordination of the one to the other.

Economics is the more fundamental, the more primary social science, in the sense that its roots lie deepest in the order of time.

⁴ Spencer, *Sociology*, vol. I, pp. 439-440. The reference to political economists applies especially to Malthus.

Notwithstanding rather severe aspersions in recent years on the value of the biological analogy in the study of human society, it may be urged that the biological analogy still affords a useful scaffolding to younger students for mounting to the broad empirical and historical basis for the study of the development of social institutions. In every stage of evolution, structure and function react on one another. Structures reveal function; function dominates structure. Structure, though it follows function, also survives it. Hence we speak of atrophied organs and decayed institutions.

Politics is derived in the same sense that the institutions of government develop subsequent to the primary economic organization of mankind in the quest for food, and is in turn conditioned by economic motives and environment. Even in the advanced stages of civilization the function of the state must ultimately be limited and controlled by the available income of the state; *i.e.*, by the fund of wealth at the disposal of any given community.⁵

The economic interpretation of history considered as a phrase for the designation of a philosophical view of history is comparatively new; but considered as a doctrine from time to time applied to the explanation of social phenomena, it is old, dating back at least to the Greek period of the beginnings of social science. It follows naturally from the fundamental importance of economic life, from the fundamental importance of industry as the condition of sustaining that life, and most of all, as the condition of sustaining the plans of ample and complete living, *not to live merely but to live well*.

The life of the individual man must move with the framework of the social structure of which he forms a part, by which he is made, and in turn modified as this social structure changes. The original construction or growth of societies and consequent transformations which societies undergo are to be traced in large measure to economic factors which themselves condition the relations of social classes and social institutions and the various manifestations of social life. These are the fundamental tenets underlying an interpretation of history.

Shall we omit the research in history and say, Let the dead past bury its dead? I will answer in the spirit of the geologist who has deciphered rock stratifications: Let the living present read the record of the dead past wherever such record, or traces of record, in literature and art may be found above or under the earth, and let us not despise a gastrocentric theory of civilization as concerning itself with things too lowly in origin. Let the living present read the record of the dead past in folkways, in manners and customs indicating ways and means of sustaining life and advancing welfare by controlling the house through economic organization, economic effort, and economic achievement. Let us seek evidence and witness of economic advancement during the first culture stage in folklore of myth and legend whether it reveals the economic life of the primitive man of many centuries of the past or the economic

⁵ Cf. Adams, *Science of Finance*.

life of the contemporary savage, or the contemporary barbarian, of the present. In this sense the study of the foundations of economics is not ancient history, but it is quite as much modern and contemporary history.

Whatever may lie beyond us and above us, we know that behind us and below us the economic element, the economic factor, has hitherto played and is now playing an important rôle in the world's development. Let us neither shun nor avoid, but seek rather to devise, or assist in devising, an economic interpretation of history, without however affirming the economic or material as an exclusive or all-embracing interpretation of history. Let us recognize in addition thereto whatever else may require recognition in order to explain the phenomena of the universe and all phases of human history, but to this large task the economist does not address himself. Economic history should be written and studied in the spirit of modern science, not in the spirit of the ancient philosophy which is still imposing many impossible tasks on the historian, although philosophy itself has become more modest as it has come more and more under the sway of science on the one hand, while science has become more ambitious and aspires to transcend itself by speculating freely in problems of philosophy.⁶ In pragmatism, it seems to me, philosophy and science have clasped hands or touched hands. In discussing with students and colleagues what should be our attitude to history, I have often been asked: Are you a Darwinian, or a Spencerian? I have always been inclined to demur, for I am neither. I do not attempt to play the rôle of Darwin, the great naturalist, nor of Spencer, the bold philosopher who, with the aid of amanuenses, traversed the whole gamut of the sciences. The economist might as well be asked: Are you an Aristotelian, or an Hegelian? He is probably neither of these.

⁶ This speculative attitude of modern science was exemplified by one of my colleagues, a physicist, who, on November 14, 1908, gave a short expository talk on the higher physics to a small group of his colleagues whose specialties lay in various groups of sciences, history, and philosophy. His subject was, "Ether" and a summary of his talk was subsequently thus worded by another colleague, a specialist in English: "Ether has weight, resistance, elasticity, and other qualities, or it has them not; that is, if there is an ether. It revolves with the earth or it does not revolve with the earth, if the earth and ether are not the same, and if there is an ether or an earth. In physics it has no place; but it penetrates everything else, especially metaphysics. Ether is an evacuated vacuum. The purpose of physics was said to be the reduction of phenomena to law, law was described as an undemonstrable theory."

The latter question had better be addressed to an old-time metaphysician.⁷ I look on economic evolution as a phase, an aspect, of social evolution. The economist may employ the word evolution as unitary and unifying concept to which and by which he relates the varying economic aspects of an ever forward moving, though not always an upward moving, unfolding life.

Among modern writers who have emphasized the importance of the economic factors in the account of progress, Marx stands out prominently. He sought distinctly to explain how the physical forces, so far as all social movement may be analyzed into these, are themselves conditioned by the physical environment. The same thought is found in writers before Buckle, in Vico, Montesquieu, and Aristotle. Buckle had the advantage of his predecessors in so much as the natural sciences were more fully developed in his time. In the second chapter of his *History of Civilization in England*, entitled Influence of Physical Laws, Buckle analyzed the effects of climate, food, and soil upon social improvement and the relations of accumulated wealth thereto. But Buckle does not claim, as is so often stated, that all history must be explained by the external causes alone.⁸ He, as well as Montesquieu, recognized clearly that the influence of the physical environment is a diminishing factor as the achievements of civilization are amassed to counteract the powerful check on progress which nature in the early stages of society offers. This contrast may be epigrammatically stated in the spirit of Montesquieu: In the infancy of nations environment makes the man and in their maturity man makes his environment.

The Marxian economic interpretation displaced this older materialistic interpretation of history.⁹ Other writers contemporary with Marx, both socialists and non-socialists, have posited the economic interpretation of history. The nineteenth century school of historical jurisprudence, and the German historical school of

⁷ Those who are interested in parallels that can be drawn between biic and social evolution should read Keller, *Societal Evolution* (Macmillan, 1915).

⁸ See Robertson, *Buckle and His Critics*, 1895. If "the measure of civilization is the triumph of the mind over external agents, it becomes clear that of the two classes of laws which regulate the progress of mankind, the mental class is more important than the physical." Buckle, *History of Civilization*, vol. I, pp. 156-157.

⁹ See especially certain passages quoted by Seligman from Marx in his *Essays, Political Science Quarterly*, vol. 16, pp. 612-640; vol. 17, pp. 71-98.

economics, have founded their exposition of history on like objective bases.¹⁰ Certain minor objections have been repeatedly urged against the economic interpretation of history, such as that it is fatalistic or opposed to free will, or that it assumes the existence of historical laws which have not yet been proved to exist, or that it is socialistic, or that it is ambiguous or vague. These may all be reduced to the objection that the economic interpretation of history places an undue stress on environment and material factors. But the recognition in the social sciences of the influence of the material and social environment means merely that although man is morally and intellectually free, his freedom will be exercised in the main within the limitations fixed by circumstances, manners, and customs of the society about him. Great men, it is true, influence their times, sometimes even overriding tradition or established custom, but it is also true that great men are in turn influenced by their time. "A Jefferson would be as impossible in Turkey," says Seligman, "as a Pobyedomostaff in the United States; Pheidias is as unthinkable in China as Leonardo in Canada. On the other hand, the effects ascribed to great men are often largely the result of forces of which they are only the chance vehicles. Caesar erected the Roman Empire, but the empire would undoubtedly have come ultimately with or without Caesar."

The chief objection to the economic interpretation of history is that it neglects the ethical and spiritual forces of history; in short, that the economic factor is not the sole factor in social life and social progress. This objection as usually framed rests upon an old metaphysics which assumes that ethical and spiritual forces are wholly unrelated to the economic order, or that they stand distinctly in opposition to it. Modern social psychology is insisting upon a wholly different method of procedure for the explanation of social phenomena and social institutions. From this viewpoint the opposition disappears. If we look upon economic science as a social science, as undoubtedly we should, then the opposition between a social interpretation of history and an eco-

¹⁰ Ferdinand Lassalle and Karl Marx were each acquainted with the masterful historical treatment of jurisprudence by Savigny and other writers. Marx's *Zur Kritik der Politischen Oekonomie* appeared in 1859, Lassalle's *Das System der Erworbenen Rechte* in 1861, and Sir Henry Maine's *Ancient Law* in the same year. Green's *Short History of the English People* appeared in 1867. Stubbs and Freeman were active then. Historical jurisprudence and historical economics alike have their beginning in early law and custom developed by forces acting unconsciously, i.e., without self-direction.

conomic interpretation largely disappears. Much of the so-called economic interpretation of history would be more correctly described as a biological interpretation of history. The economic interpretation of history simply points out that in an explanation of the course of social evolution, that is, in any interpretation of the development of human institutions, we must begin with those which come first in the order of time, namely, the economic in distinction from the political, religious, and ethical.

In an economic interpretation of history we may insist that the material preceded the ethical and spiritual in social development: the word *good* was originally used in a material sense, a good; the distinction between good and bad in the ethical and spiritual sense came later, much later. To esteem a man was originally to place a money value on him (*aestimare*, from *aes*, copper, money). Ethical and religious idealism can make itself felt only within the limitations of economic conditions. The factors of human life and in human progress would be numberless if reduced to detail, but, speaking broadly and in terms of the general classification of the sciences, we may say that they are physical, biological, psychical, and social. Further, each of these can be broken into subclasses at least as numerous as the subdivisions of the special sciences differentiated within the respective spheres of being. Each science in an ascending scale of complexity crosses and recrosses in subject-matter and in logical methods, with sections of the next lower in the scale of simplicity.¹¹

It is for the purpose of achieving a comprehensive analysis of the factors in social life and social progress that the new science of sociology is called into being. The importance of the sociologists, considered as research students and as a school of thinkers, lies in their frank recognition that all things are tied together at common points, that the universe must be reckoned as a cosmos, and that its evolution can be traced in a serial order of the sciences.

The development of the science of sociology with its appropriate method cannot be ascribed exclusively to the evolution of the positive philosophy under the guiding genius of August Comte, as is so often done. The science of sociology developed with other currents of thought tending toward the same end. The naturalistic philosophy which took shape in the development of the natural sciences in the eighteenth and nineteenth centuries gave us Lamarck and Darwin. The revival of the historical inquiry on empirical and

¹¹ Cf. Giddings, *Principles of Sociology* (Macmillan, 1893), p. 94.

Aristotelian lines gave us Savigny and Maine in jurisprudence and the study of institutions; Roscher, Knies, and Hildebrand in the historical school of economics; Saint Simon, Rodbertus, Marx, and Lassalle in the socialist school of economics; and Ruskin in the art movement. The philosopher Hegel may from some points of view be regarded as the connecting link between the old metaphysics and the new sciences; his contemporary, Goethe, is an expression of it. Hegel's doctrine of development has as profound an influence on the German founders of historical criticism and scientific socialism as Malthus' theory of natural selection which has played such an immense rôle in speculative biology. The economic historian and the sociologist work in large measure on the same problem and by the same methods. In a very important sense economic history is a contributory science to sociology. The economic historian gathers material which the sociologist may employ as data for his own inductions. For the student of the social sciences, the study of economic or industrial history by the historical method and by principles of criticism, is one of the best possible preparations for the broad and sympathetic study of existing social conditions and problems.¹²

Throughout our study of economic history we take note also of those spiritual forces and governing ideas which determine the relations of individuals of community or group and bind them together by custom or law for the distribution of product and property (ownership). An examination of the transition from gentile economy to political economy affords an opportunity for noting the primary and fundamental distinction or differences between economics and politics, not with a view to showing the subordination or priority of the one to the other, but with a view to establishing the co-equality of their importance and their interdependence. If we wish to speak of the delimitation of economics from other sciences, notably from politics, we may speak of economics as the science of man's individual and collective or social action in the supply of his wants and the attainment of his ends, within the domain of freedom set apart by the state. This definition assumes a positive theory of freedom; namely, the theory that liberty as distinguished from license is, and must be, itself

¹² The foregoing paragraphs are in part quoted and in part rewritten from the writer's own discussion of the economic interpretation of history in the *Publications of the American Economic Association*, Third Series, vol. III, pp. 391-392.

state created.¹³ Civic or political economy is clearly traceable through successive phases of evolution from the ancient city of the Greeks and Romans, through Roman republican economy, Roman imperial economy, and the medieval economies of Europe to the middle of the fourteenth century. It is by such a survey alone, that we can fully understand the foundations of modern industry and our modern economics, shot through as they are with survivals of economic institutions of preceding epochs.

If the present conditions of industry in civilized countries are the outgrowth of a long process of economic evolution, it should be possible to arrange the forward steps of industrial history into great epochs marking off from one another in a rough way the important stages in economic progress. The classification of the stages of economic history may be based on various principles. A suggestive combination of the various recognized principles of classification is made on the bases of four distinct principles: economic, or socio-economic organization; dominant form of industry; prevailing form of exchange; prevailing status of labor; then these can be combined under a fifth category, the corresponding culture stage. In this classification, preference can be given to the grouping of economic stages on the basis of economic organization combined with a consideration of the dominant forms of industry in the advancing stages of progress and the corresponding culture stage.

In order to form some idea of the vast periods of time covered by the economic stages of the successive culture epochs, conceptions of geological time must be applied for measurement. All attempts to reduce geological time to solar years or to any chronological table are at best but respectable guesses.¹⁴ Especially long must have been the earlier stages of progress, when man's dependence on external nature was so nearly absolute, when those devices and inventions by which he overcomes hostile powers of nature or harnesses them to do his bidding, were still unknown.

Human progress, as was observed by Morgan, must have proceeded by a geometrical rather than by an arithmetical ratio. "Every item of absolute knowledge gained became a factor in further acquisitions, until the present complexity of knowledge was attained. Consequently, while progress was slowest in time in the

¹³ For a discussion of the positive theory of freedom or liberty, see Thomas Hill Green, *Political Obligations*.

¹⁴ Cf. Ward's restatement of Haeckel's tables, *Pure Sociology*, pp. 38-40.

first period and most rapid in the last, the relative amount may have been greatest in the first, when the achievements of either period are considered in their relations to the sum."¹⁵ It may have required ages for some of the simpler steps in the invention of machinery to have been taken, but these once taken, similar inventions or new adaptations of the old ones could follow each other more easily. The real age of machine production, which is introducing the world economy with its distinct market, among other characteristics, was inaugurated scarcely a century ago. If we count the age of machine production as having begun with the inventions in cotton spinning and the application of the steam engine as motive power, it is now nearly a century and a half. But if we do not consider the real age of machine production as having been begun before the telegraph and telephone, it has not yet been in existence a full century.

But we must guard against the impression that economic history undertakes to give an account of the origin and progress of inventions; it can do this only incidentally, and in part by analysis and inference. Its main purpose must be to trace the development of economic organization, effort and achievement in general. The study of machinery as such belongs to the technologist rather than to the economist.

The real content of economic history is much more varied than this, and must be studied in the spirit of a genetic science. In recent years the several schools of economic science have tended to coöperate and merge into one broadly conceived science. Sociology is coming, or has already come, into recognition. Economists must work in collaboration with politicists, sociologists, and psychologists, to solve social problems; all must unite with lawyers and legislators to promote the general welfare. The distinction between public wealth and individual wealth or riches is at least as old as Lord Lauderdale; many of us would say as old or older than the cameralists. Should we not say the distinction is as old as the distinction between public policy and private gain? The problems of production meanwhile will continue to be met in proportion as we harness the technical sciences in the service of man in society. In the spirit of Alfred Marshall, economic progress must be coextensive with human progress.

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¹⁵ Morgan, *Ancient Society*, p. 38 (N. Y. 1878).